



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,989	02/09/2004	My N. Nguyen	JM35978 (CIP2) DIV - 4962	1282
7590 07/05/2005 Bingham McCutchen LLP Three Embarcadero Center San Francisco, CA 94111-4067			EXAMINER VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT 1751	PAPER NUMBER
DATE MAILED: 07/05/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/775,989

Applicant(s)

NGUYEN, MY N.

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-64 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 41-46 and 48-64 is/are rejected.
- 7) ☒ Claim(s) 47 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

- This action is in response to the applicant's amendments and arguments filed 03/07/2005.

Claims 41-64 as amended are presently pending with the application.

Response to Arguments

Applicants arguments over the amended claims has been given complete consideration and the following rejections are withdrawn and few are maintained:

A. Rejections Withdrawn:

1. Claims 41-42, 44-46, 48-50 and 59-62 are rejected under 35 USC 102(b) as anticipated by Shingo et al (JP 09-067518) is withdrawn in view of applicants amendment of the claim and their arguments in Page-6, Para-2.

2. Claims 41-46, 48, 51, 57, 59-60 and 63-64 are rejected under 35 USC 102(b) as anticipated by Ohkawa et al (US 4,790,968) is withdrawn in view of applicants amendment of the claim and their arguments in Page-8.

4. Claims 41, 43-44 and 52-54 rejected under 35 USC 102(b) as anticipated by Kang et al (US 5,837,119) is withdrawn in view of applicants amendment of the claim and their arguments in Page-13, Ln 9-12)

5. Claim 55 rejected under 35 USC 103(a) as obvious over Kang et al (US 5,837,119) is withdrawn in view of the amendment to the claim.

6. Claims 41, 43, 51 and 63 are rejected under the judicially created doctrine of double patenting over claims 1, 11-12, 18-20 of U. S. Patent No. 6,673,434 is withdrawn over the terminal disclaimer filed 03/07/2005.

7. Claims 41 and 56 are rejected under the judicially created doctrine of double patenting over claims 1, 17 and 18 of U. S. Patent No. 6,797,382 is withdrawn over the terminal disclaimer filed 03/07/2005.

8. Claims 41, 43, 56, 63 are provisionally rejected under the judicially created doctrine of double patenting over claims 1, 11-12, 15, 18-19, 20 and 22 of copending Application No. 10/715,719, is withdrawn over the terminal disclaimer filed 03/07/2005.

B. Rejections Maintained:

1. Claims 41-42, 44-46 and 59-61 are rejected under 35 USC 102(b) as anticipated by Kuist et al (US 4,118,102). This rejection is maintained for the reasons set forth at Page-3 of the rejections mailed 11/03/2004.

Applicants arguments have been fully considered but do not overcome the rejection for the following reasons. The resin used by the prior art, GE-RTV silicones (Col-7, Example VIII) would meet the limitation of compliant resin in the instant claims, because the composition of RTV silicones (cited in Reylek (US 5,890,915: Col-11, Ln 8-15) and attached Data sheets from Fluorochem, particularly Page-3, RTV formulation) are identical to the resins in the applicants composition as claimed and as disclosed in the Specification (Page-5, Lines 5-18).

2. Claims 41-42, 44-46 and 59-61 are rejected under 35 USC 102(b) as anticipated by Cole et al (US 5,227,093). This rejection is maintained for the reasons set forth at Pages 5-6 of the rejections mailed 11/03/2004.

Applicants arguments have been fully considered but do not overcome the rejection for the following reasons. The silicone resins employed by the prior art containing an organopolysiloxane containing at least two alkenyl radicals such as vinyl per molecule, an organohydrogenpolysiloxane containing an average of at least two silicon-bonded hydrogen atoms per molecule and platinum metal or a platinum compound as the hydrosilylation or curing catalyst (Col-5, Ln 22-31) are identical to those claimed and disclosed by the applicants in the Specification (Page-5, Lines 5-18) and identical compositions have identical properties. Cole further discloses the composition is an elastomer or gel obtained by curable organosiloxanes (Col-2, Ln 24-26).

3. Claims 41-46, 48-50 and 57-62 are rejected under 35 USC 102(b) over Nguyen (US 5,852,092). This rejection is maintained for the reasons set forth at Pages 4-5 of the rejections mailed 11/03/2004.

Applicant refers to an affidavit or declaration filed in the parent application. Affidavits or declarations, such as those submitted under 37 CFR 1.131 and 37 CFR 1.132, filed during the prosecution of the parent application do not automatically become a part of this application. Where it is desired to rely on an earlier filed affidavit or declaration, the applicant should make the remarks of record in the later application and include a copy of the original affidavit or declaration filed in the parent application.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 45-49, 51 and 58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 45 recites the limitation "silicone resin" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-44 for the purposes of the examination.

Claim 46 recites the limitation "vinyl terminated siloxane" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-45 for the purposes of the examination.

Claim 47 recites the limitation "reinforcing additive" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-45 for the purposes of the examination.

Claim 48 recites the limitation "crosslinker" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-45 for the purposes of the examination.

Claim 49 recites the limitation "catalyst" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-45 for the purposes of the examination.

Claim 51 recites the limitation "wetting enhancer" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-43 for the purposes of the examination.

Claim 58 recites the limitation "filler material" in Line-1. There is insufficient antecedent basis for this limitation in the claim. The examiner construes this to depend on claim-57 for the purposes of the examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 41-43 and 56-64 are rejected under 35 U.S.C. 102(b) as being anticipated by Morgan (US 4,931,479).

The prior art teaches a form-in-place conductive polyurethane foam that is light weight, flexible and withstands vibration containing a dispersion of conductive fillers of Ag, Cu, Al, in an elastomer that meets the limitation of interface material containing a compliant resin and solder in Claim-41 (Abstract, Col-2, Ln 39-42; Col-6, 28-38).

With regard to claims 42, 60-62, the prior art teaches the amount of the conductive filler to be 40 parts by weight to 150 parts by weight per 100 parts of polyol resin (Col-6, Ln 56-64).

With regard to claim 43, the prior art teaches the addition of surfactant/wetting-enhancer (Col-6, Ln 23-27).

With regard to claim 56, the prior art teaches the Al conductive filler.

With regard to claims 57-58, the prior art teaches addition of the carbon fiber fillers, wherein the particle size of fillers is 1-70 microns (Col-7, Ln 1-3, Col-6, Ln 50-55).

With regard to claims 63-64, the prior art teaches a 30-mil thick sheet of the conductive material (Col-9, Ln 47-51). All the limitations of the instant claims are met.

The reference is anticipatory.

2. Claims 41-42, 44-46, 48, 52-54, 56-57 and 59-64 are rejected under 35 U.S.C. 102(b) as being anticipated by Reylick (US 5,890,915).

The prior art teaches a conducting structure/sheet with resilient conductive paths containing a vinyl siloxane elastomer sheet matrix coated with mixture containing: (Col-10, Ln-63 to Col-11, Ln-15):

- (i) Vinyl siloxane binder (GE-RTV#645) (Compliant resin/vinyl silicone) <Claims: 41, 44, 45, 46, 59>
- (ii). Hydride crosslinker at 7 wt% content <Claims 45, 48,>
- (iii). Pt catalyst at 1 PPM level <Claim 45>
- (iv). Conductive filler such as Cu, Ag, In, Sn, Ga and their alloys in the amount of 85% by weight of total solids and binder combined <Claims 41-42, 52-54, 56, 60-62>.

that meets the limitations of the claims 41-42, 44-46, 48, 52-54 and 59-62.

With regard to claim 57, the prior art teaches the addition of fillers such as alumina and silica (Col-7, Ln 17-30).

With regard to claims 63-64, the prior art teaches strips of the product (Col-11, Ln 45-47).

All the limitations of the claims are met.

The reference is anticipatory.

3. Claims 41-42, 44-46, 48-49 and 59-61 are rejected under 35 U.S.C. 102(b) as being anticipated by Vyas (US 5,348,686).

The prior art teaches an electroconductive silicone gel comprising silver particles that is non-flowing, self-healing and thermally stable which meets the limitations of claim-41 (Abstract, Col-2, Ln 50-55).

With regard to claims 42 and 60-61, the prior art teaches 60-75 wt% conductive filler in the composition (Col-3, Ln 43-48).

With regard to claims 44-46, the prior art teaches the addition of vinyl terminated poly-dimethyl siloxane (157A); with regard to claims 45 and 48, the prior art teaches a hydride functional crosslinker (157B); and with regard to claims 45 and 49, the prior art teaches a Pt complex as catalyst (Col-2, Table; Col—4, chemical formulas). All the limitations of the instant claims are met.

The reference is anticipatory.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 43 and 49-51 rejected under 35 U.S.C. 103(a) as being unpatentable over Reylick (US 5,890,915) in view of Kawamura (US 5,684,110).

The disclosure on the conducting structure/sheet with resilient conductive paths by Reylick as set forth in rejection-2 under 35 USC 102(b) is herein incorporated.

The prior art fails to teach the addition of organotitanate wetting enhancer per claims 43 and 51 and a Pt catalyst per claims 49-50.

In the analogous art, Kawamura et al teach the benefits of adding organotitanate esters and platinum vinylsiloxane complexes as catalysts for forming gaskets in place by the hydrosilylation of polyorganosiloxanes that are similar to those claimed/disclosed by the applicants.

It would have been obvious to a person of ordinary skill in the art to combine the teachings of Reylek with Kawamura by modifying the siloxane compositions by optionally incorporating organotitanate and/or platinum complex in the composition to benefit from accelerated reaction between the components with reasonable expectation of success, because the combined prior art teaching is suggestive of the claimed interface material.

2. Claims 43 and 50-51 rejected under 35 U.S.C. 103(a) as being unpatentable over Vyas (US 5,348,686) in view of Kawamura (US 5,684,110).

The disclosure on the electroconductive silicone gel by Vyas as set forth in rejection-3 under 35 USC 102(b) is herein incorporated.

The prior arts fail to teach the addition of organotitanate wetting enhancer per claims 43 and 51 and a Pt catalyst per claim 50.

In the analogous art, Kawamura et al teach the benefits of adding organotitanate esters and platinum vinylsiloxane complexes as catalysts for forming gaskets in place by the hydrosilylation of polyorganosiloxanes that are similar to those claimed/disclosed by the applicants.

It would have been obvious to a person of ordinary skill in the art to combine the teachings of Vyas with Kawamura by modifying the siloxane compositions by optionally incorporating organotitanate and/or platinum complex in the composition to benefit from accelerated reaction between the components with reasonable expectation of success, because the combined prior art teaching is suggestive of the claimed interface material.

3. Claim 55 rejected under 35 U.S.C. 103(a) as being unpatentable over either Reylick (US 5,890,915) or Vyas (US 5,348,686) in view of Bosch (DE 19640192, Abstract).

The disclosure on the conducting structure/sheet with resilient conductive paths by Reylick as set forth in rejection-2 under 35 USC 102(b) is herein incorporated.

The disclosure on the electroconductive silicone gel by Vyas as set forth in rejection-3 under 35 USC 102(b) is herein incorporated.

The prior arts fail to teach the addition of SnBi or SnAgAu per claim-55.

In the analogous art, Bosch teaches an anisotropic adhesive comprising an alloy of Sn/Bi in a resin base and an adhesive film and its benefits in assembling IC circuits in a flip-chip manner without bumping.

It would have been obvious to a person of ordinary skill in the art to combine the teachings of either Reylek or Vyas with Bosch by modifying the siloxane compositions by optionally incorporating Sn/Bi in the composition to benefit from low temperature processing with reasonable expectation of success, because the combined prior art teaching is suggestive of the claimed interface material.

4. Claim 58 rejected under 35 U.S.C. 103(a) as being unpatentable over either Reylick (US 5,890,915) or Vyas (US 5,348,686) in view of Morgan (US 4,931,479).

The disclosure on the conducting structure/sheet with resilient conductive paths by Reylick as set forth in rejection-2 under 35 USC 102(b) is herein incorporated.

The disclosure on the electroconductive silicone gel by Vyas as set forth in rejection-3 under 35 USC 102(b) is herein incorporated.

The prior arts fail to teach the addition of carbon fibers per claim-58.

In the analogous art, Morgan teaches an flexible form-in-place conductive sheet and the compositions containing carbon fiber and its benefits with microwave absorption.

It would have been obvious to a person of ordinary skill in the art to combine the teachings of either Reylek or Vyas with Morgan by modifying the siloxane compositions by optionally incorporating carbon fibers in the composition to benefit from microwave noise cancellation with reasonable expectation of success, because the combined prior art teaching is suggestive of the claimed interface material.

Allowable Subject Matter

Claim 47 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither discloses nor fairly suggestive of the use of Vinyl-Q-Resin in the composition of interface materials.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-

Art Unit: 1751

1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMV
June 25, 2005.


Mark Kopec
Primary Examiner